REMARKS

Claims 10, 12, 13, and 19-25 are pending in this application. By this Amendment, claim 25 is added. Support for the amendment to the claims may be found, for example, in the original claims, drawings and specification, particularly in paragraph [0051]. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

I. Restriction Requirement

Applicants affirm the election of Group I, claims 1-3, 10, 12 and 13, without traverse.

II. Rejections Under 35 U.S.C. §103

The Office Action rejects claims 10, 12, 13 and 19-24 as having been obvious over U.S. Patent No. 4,769,073 to Tastu et al. ("Tastu") in view of European Patent No. 444,470 to Ashley et al. ("Ashley") and further in view of U.S. Patent No. 6,171,572 to Aozasa ("Aozasa"). The rejection is respectfully traversed.

Independent claims 10, 19 and 22 specifically require an "abrasive comprising a sol," wherein "the sol has a pH of 3 to 6 or 8 to 10." However, none of Tastu, Ashley or Aozasa, alone or in combination, teach or suggest at least this claimed limitation.

The Office Action relies solely on column 7, line 19 to column 8, line 7 of Tastu for the teaching of a sol having a pH of 3 to 6 or 8 to 10. However, this portion of Tastu describes a pH of a reaction mixture containing a solution of a cerium salt and a solution of rare earth salt, wherein the pH is in a range of 6-10. At this pH range, the reaction forms a suspension, and Tastu teaches subsequently filtering the suspension. See Tastu, column 8, lines 39-42. Thus, Tastu merely teaches a desired pH range of an intermediary reaction solution, and not the stable pH of a final product. Consequently, Tastu does not teach or suggest an "abrasive comprising a sol," wherein "the sol has a pH of 3 to 6 or 8 to 10," as required by independent claims 10, 19 and 22.

In contrast, the present claims remedy a known problem in the art, that when a sol comprising particles that are composed solely of cerium oxide is dispersed in water, the sol exhibits poor dispersion stability. Applicants have discovered an unexpected result, that adding a lanthanum compound to a sol composed of cerium oxide particles dispersed in water results in improved dispersion stability of the sol.

Applicants' Figure 3 shows the zeta potential of four sols comprising particles of cerium oxide (Ce) and a lanthanum compound (La) dispersed in water. The molar ratio of La/(Ce+La) in each sol is 0, 0.01, 0.05 and 0.10, respectively. Figure 3 clearly shows a large change in the zeta potential when comparing the sol containing no lanthanum compound (0 molar ratio) with the three sols containing a lanthanum compound (molar ratios 0.01, 0.05 and 0.10). In fact, the three lanthanum compound-containing sols (molar ratios 0.01, 0.05 and 0.10) show large absolute values of zeta potential, and sols having a high dispersion stability are obtained at near pH 5. Particularly, the marked shift in zeta potential that occurs between the (0 molar) sol and the (0.01 molar) sol demonstrates that particle aggregation tends to occur when a lanthanum compound is present. Furthermore, in sols comprising a lanthanum compound, the absolute value of the zeta potential does not increase as a result of changing the pH.

A stable pH region of a particular sol varies as a function of the particles contained therein. Therefore, one of skill in the art could not arrive at the stable pH regions of 3 to 6 or 8 to 10 of the sols according to the present claims, from the teaching of forming a reaction mixture of pH 6-10 and subsequently filtering the mixture, as taught by Tastu. Additionally, nowhere else in Tastu, is an "abrasive comprising a sol," wherein "the sol has a pH of 3 to 6 or 8 to 10," taught or suggested. Accordingly, Tastu fails to teach or suggest an "abrasive comprising a sol," wherein "the sol has a pH of 3 to 6 or 8 to 10," as required by independent claims 10, 19 and 22. Therefore, none of independent claims 10, 19 and 22, or claims 12, 13,

20, 21, 23 and 24, which depend variously therefrom, would have been obvious over Tastu. Moreover, because all of the other cited references, alone or in combination, also fails to teach or suggest at least this limitation, the pending claims would not have been obvious over any of the other cited reference, alone or in combination. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of this application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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